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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,518	08/26/2003	Mizuki Kono	M1071.1856/P1856	2697

7590 10/13/2004
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EXAMINER

HAM, SEUNGSOOK

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AA

Office Action Summary	Application No.	Applicant(s)	
	10/647,518	KONO ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/26/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 7, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 6, 7 and 14, “within 30 ppm/°C” is vague and indefinite as to what range would meet on the term, “within.” For example, in Tables 1-3, these tables show a temperature coefficient range from -42 to 27.1 ppm/°C. How this range is related to “within 30 ppm/°C”?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-9, 11 and 13-18 are rejected under 35 U.S.C. 102(a) as being anticipated by Okawa (JP 2000-095736, insofar as understood).

Okawa (see English translation, paragraph [0011]) discloses a dielectric resonator comprising: a dielectric ceramic comprising; a major component having a $a\text{Re}_2\text{O}_3 - b\text{Al}_2\text{O}_3 - c\text{SrO} - d\text{TiO}_2$ (where Re/Ln is rare earth element) in which a, b, c, d satisfy the formula, $0.113 \leq a \leq 0.172$ (Okawa shows the range of $0.056 \leq a \leq 0.214$

which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.111 \leq b \leq 0.171$ (Okawa shows the range of $0.056 \leq a \leq 0.214$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.322 \leq c \leq 0.388$ (Okawa shows the range of $0.286 \leq a \leq 0.5$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.323 \leq d \leq 0.396$ (Okawa shows the range of $0.230 < a < 0.470$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), and $a+b+c+d=1.000$, and a sub-component which contains 0.01 to 2 parts by weight of Fe as an element on the basis of Fe_2O_3 , with respect to 100 parts by weight of the major component (see paragraph [0026]). It should be noted that the Court held "[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated' if one of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See also MPEP 2131.03.

Moreover, Okawa discloses the rare earth element (Re) comprises of La and/or at least one other rare earth elements (see table 1, 2nd column and paragraph [0020]); the dielectric ceramic composition has a dielectric constant of at least 30, a $Q \times f$ value of at least 40,000 GHz, and an absolute value of a temperature coefficient of a resonant frequency within 30 ppm/°C (see table 2, last column).

Furthermore, Okawa discloses the dielectric resonator is a TE (inherently TE_{01δ}) or TEM mode (see paragraph 0057-0058)], and the resonator 4 is disposed in a metallic case 1 and coupled to input and output coupling means 2, 3 (see fig. 1).

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Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- 9, 11 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Okawa (EP '221).

Okawa (paragraph [0031]) discloses a dielectric resonator comprising: a dielectric ceramic comprising; a major component having a $a\text{Re}_2\text{O}_3 - b\text{Al}_2\text{O}_3 - c\text{SrO} - d\text{TiO}_2$ (where Re/Ln is a rare earth element) in which a, b, c, d satisfy the formula, $0.113 \leq a \leq 0.172$ (Okawa shows the range of $0.056 \leq a \leq 0.214$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.111 \leq b \leq 0.171$ (Okawa shows the range of $0.056 \leq a \leq 0.214$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.322 \leq c \leq 0.388$ (Okawa shows the range of $0.286 \leq a \leq 0.5$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), $0.323 \leq d \leq 0.396$ (Okawa shows the range of $0.230 < a < 0.470$ which it partially overlap with the applicant's claimed range, thus some of numbers are within the applicant's claimed range), and $a+b+c+d=1.000$; and a sub-component which contains 0.01 to 2 parts by weight of Fe as an element on the basis of Fe_2O_3 , with respect to 100 parts by weight of the major component (see paragraph [0052], where the total amount is not more than 5 parts by weight to 100 parts by weight of a main component). It should be noted that the Court held "[W]hen,

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as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated' if one of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See also MPEP 2131.03.

Moreover, Okawa discloses the rare earth element (Re) comprises of La and/or at least one other rare earth elements (see table 1, 2nd column and paragraph [0044]); the dielectric ceramic composition has a dielectric constant of at least 30, a Q x f value of at least 40,000 GHz, and an absolute value of a temperature coefficient of a resonant frequency within 30 ppm/°C (see paragraph [0086]).

Furthermore, Okawa discloses the dielectric resonator is a TE (inherently TE_{01δ}) or TEM mode (see paragraph [0073-0074]), and the resonator 4 is disposed in a metallic case 1 and coupled to input and output coupling means 2, 3 (see fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10, 12, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa (JP 2000-095736, insofar as understood).

Regarding claim 10, it is obvious to provide a support for the dielectric resonator since such design technique is well known in the art.

Regarding claim 12, it should be noted that Okawa teaches the dielectric resonator can be TEM mode. Thus, it would have been obvious to provide inner and outer conductors in a dielectric ceramic to form a TEM dielectric resonator.

Regarding claims 19-20, Okawa teaches that the dielectric resonator can be used in RF field, such as microwave and a millimeter wave, and a dielectric antenna (see paragraph [0077]). Thus, providing the dielectric resonator of Okawa in a communication device such as a dielectric duplexer would have been obvious as a matter of design choice since using a dielectric resonator/filter in a duplexer or communication device is well known in the art.

Claims 10, 12, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa (EP '221).

Regarding claim 10, it is obvious to provide a support for the dielectric resonator since such design technique is well known in the art.

Regarding claim 12, it should be noted that Okawa teaches the dielectric resonator can be TEM mode. Thus, it would have been obvious to provide inner and outer conductors in a dielectric ceramic to form a TEM dielectric resonator.

Regarding claims 19-20, Okawa teaches that the dielectric resonator can be used in RF field, such as microwave and a millimeter wave, and a dielectric antenna (see paragraphs [0001] and [0076]). Thus, providing the dielectric resonator of Okawa in a communication device such as a dielectric duplexer would have been obvious as a matter of design choice since using a dielectric resonator/filter in a duplexer or communication device is well known in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okamoto et al. (US '896, see column 2) and Nishioka et al. (US '692, see column 2, lines 41-50) disclose a dielectric ceramic composition using Fe_2O_3 as an additive to maintain a high Q value;

Murakawa (US '291) and Okawa (US '335) disclose a dielectric resonator contains rare earth elements; and

Takagi et al. (US '094) discloses a dielectric resonator supported by a support and used in a duplexer/communication device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Seungsook Ham
Primary Examiner
Art Unit 2817

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